Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Chlamydial urethritis and cervicitis.

Bibliographic Source(s)

Finnish Medical Society Duodecim. Chlamydial urethritis and cervicitis. In: EBM Guidelines. Evidence-Based Medicine [internet]. Helsinki, Finland: Wiley Interscience. John Wiley & Sons; 2011 Oct 31 [Various].

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Finnish Medical Society Duodecim. Chlamydial urethritis and cervicitis. In: EBM Guidelines. Evidence-Based Medicine [Internet]. Helsinki, Finland: Wiley Interscience. John Wiley & Sons; 2010 Sep 6 [Various].

Recommendations

Major Recommendations

The levels of evidence [A-D] supporting the recommendations are defined at the end of the "Major Recommendations" field.

Essentials

- The disease should be diagnosed and the patient treated in time to avoid the serious complications of prolonged or recurrent infection (pelvic inflammatory disease, infertility, ectopic pregnancy).
- In order to prevent the spread of the chlamydial infection, the sex partners of the infected patient should be examined and treated.

Investigations in a Suspected Sexually Transmitted Disease (STD)

- The extent of investigations in a suspected STD is decided on the basis of the patient interview.
    - Risk factors: unprotected sex with a casual partner; the partner has a diagnosed or suspected STD; infection possibly acquired abroad; a foreign partner; sex between men
- The basic tests of a symptomless patient should include at least chlamydia from the anatomical sites possibly involved and human immunodeficiency syndrome (HIV).
- If the patient has symptoms, risk factors or a diagnosed STD, the tests include chlamydia and gonorrhoea from the anatomical sites possibly involved (urethra, cervix, throat or anus), as well as HIV and syphilis, and tests for hepatitis if considered necessary.
- If gonorrhoea is suspected on clinical grounds or a nucleic acid amplification test for gonorrhoea is positive, a culture sample is obtained in order to assess antimicrobial sensitivity.

- When taking samples, the incubation periods of the different diseases should be borne in mind: chlamydia and gonorrhoea 1 week, syphilis 1–2 months and HIV 1–3 months.

Epidemiology

- Sexually transmitted diseases caused by chlamydia (*Chlamydia trachomatis*) are a significant public health issue.
- Chlamydial infections are diagnosed especially in young adults who have numerous sex partners (Hiltunen-Back et al., 2001).
    - Epidemiology varies between countries (e.g., in Finland one third of the infections are diagnosed in people less than 20 years of age).
- Asymptomatic infections promote the spread of the disease. The time from infection to diagnosis is on average four weeks but may be up to many months (Hiltunen-Back et al., 2001).
- By the time of diagnosis, every third patient has already had a new sexual relationship, which presents a challenge for tracing the infection.

Early Symptoms

- The incubation period from chlamydial infection to the emergence of symptoms is one to three weeks (i.e., longer than in gonorrhoea). About half of men and most women are asymptomatic.
- In men, urethritis is marked by scant, watery (later mucous) discharge from the urethra. Other symptoms include an aching pain and dysuria. In women, there is dysuria, pollakisuria and mild leucorrhoea. Cervicitis is a relatively common finding. It is manifested as mucopurulent discharge and oedema or bleeding tendency of the orifice of the uterus.

Late Symptoms and Complications

- In women, prolonged chlamydial infection often results in endometritis and salpingitis. These conditions are not always associated with severe symptoms; the patient may have just slight fever or mild lower abdominal pain. Endometritis may also cause irregular uterine bleeding.
- Pelvic inflammatory disease (PID [see the Finnish Medical Society Duodecim guideline "Diagnosis and treatment of acute pelvic inflammatory disease"]) is an important late complication of chlamydial infection; it generally requires inpatient treatment. Perihepatitis is a rare complication of chlamydial infection.
- Late complications of extensive and, especially, recurrent chlamydial infection also include tubal damage which in turn causes infertility and ectopic pregnancies (Scholes et al., 1996; Egger et al., 1998).
- In men, chlamydial infection is an important cause of epididymitis, whereas the etiological significance of chlamydia in prostatitis is considered small.
- Chlamydial infection can trigger the development of reactive arthritis (uroarthritis, Reiter's disease [see the Finnish Medical Society Duodecim guideline "Reactive arthritis"]) in both men and women.

Diagnostics

Clinical Symptoms and Signs

- Chlamydial infection can be suspected but never diagnosed on the basis of symptoms alone.

Laboratory Diagnostics

- A chlamydial infection can be detected by tests based on nucleic acid amplification.
- Today chlamydia and gonorrhoea can be analysed on the same sample if required.
- First void urine samples are used for chlamydial diagnostics in both men and women. Samples are taken when at least 5–7 days have passed since the potential time of acquirement of infection. The patient has to refrain from voiding for 2 h before urine sampling. The sample (10 ml) is sent to a laboratory in the normal way. If needed, the sample may be kept refrigerated for one or two days.
- As an alternative to first-void urine, swab samples may be obtained from cervix in women and urethra in men. If required, chlamydial samples may also be obtained from throat, anus and conjunctiva.
- First-void urine samples are well suited for home screening of risk groups or sexual partners (Ostergaard et al., 1998).
- Chlamydial serology may be useful in chronic infections. High immunoglobulin G (IgG) antibody titres are often present in pelvic infections and also in other complications. An isolated positive test indicates that the patient has a history of chlamydial infection.

Treatment of Chlamydial Infection

- *Chlamydia trachomatis* is sensitive to macrolides and tetracyclines. Clindamycin is also relatively effective against this species, fluoroquinolones less so. The common cephalosporins and penicillin have poor efficacy.
- Azithromycin 1 g as a single dose is the treatment of choice for chlamydial infection. It is suitable also during pregnancy (Brocklehurst & Rooney, 1998) [B]. Alternatives include tetracycline 500 mg × 3, lymecycline 300 mg × 2 or doxycycline 100 mg × 2 for 7–10 days (Low,

2005) [A].

- Some 10% of patients get mild gastric adverse effects from azithromycin and tetracyclines. Controlled studies have shown similar therapeutic outcomes for these drugs, with 95%–97% of patients being cured.
- Chlamydial infections of the throat, anus or eyes are treated with doxycycline for 10 days. For mild complications, patients are given tetracycline or doxycycline for two to three weeks, for reactive arthritis triggered by chlamydial infection even longer. In pelvic infections, combinations of antibiotics are used, as other bacteria, such as anaerobes, may be involved.
- The patient should abstain from sex for one week and then use condoms until the follow-up checkup.
- The permanent sexual partner of the index patient should be tested before any treatment is started. At the same time, other possible STD can be tested for and contact tracing performed.

Post-Treatment Follow-Up and Tracing the Contacts of the Patient

- A follow-up visit should only take place after three to four weeks because the presence of gene traces may produce a false positive result in an earlier re-test.
- Every physician treating patients with chlamydial infections is required to trace the sexual contacts of their patients (Mathews et al., 2001) [B]. The physician should enquire of the index patient whether the person who is the source of the infection and any persons potentially infected have been tested for chlamydia and received treatment as needed. If desired, the attending physician may delegate the screening of sexual partners to a physician responsible for communicable diseases.

Screening for Asymptomatic Infections

- It has been shown that targeted screening for chlamydial infections is effective in preventing pelvic inflammatory disease (PID) and ectopic pregnancies (Scholes et al., 1996; Egger et al., 1998; Pimenta et al., 2000).
- Screening for chlamydial infection is cost-effective if the prevalence of chlamydial infection exceeds 3% in the population screened (Paavonen, Puolakkainen, & Paukku, 1998). Systematic screening for chlamydial infection has been considered relevant in young women who see their physician to renew their contraceptive pill prescription, especially if the sexual partner is changed.
- Tracing the contacts of the patient is the most effective way of combating the disease. Partner screening normally yields 20%–30% positive cases. The practice of taking first-void urine samples from the partner at home has increased the number of detected infections by 50% compared with the usual practice of partner notification (Ostergaard et al., 1998). Many young people are unaware that chlamydial infection is often asymptomatic, which reduces and delays testing for chlamydia.
- Seroepidemiological studies have indicated an association between a history of chlamydial infection and the development of cervical carcinoma (Koskela et al., 2000; Anttila et al., 2001). The exact causal relationship remains to be determined, however.

Related Resources

Refer to the original guideline document for related evidence, including Cochrane reviews and other evidence summaries.

Definitions:

Classification of the Quality of Evidence

Code	Quality of Evidence	Definition
A	High	Further research is very unlikely to change confidence in the estimate of effect. • Several high-quality studies with consistent results • In special cases: one large, high-quality multi-centre trial
B	Moderate	Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate. • One high-quality study • Several studies with some limitations
C	Low	Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate.

Code	Quality of Evidence	Definition
		• One or more studies with severe limitations
D	Very Low	Any estimate of effect is very uncertain. • Expert opinion • No direct research evidence • One or more studies with very severe limitations

GRADE (Grading of Recommendations Assessment, Development and Evaluation) Working Group 2011 (modified by the EBM Guidelines Editorial Team).

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Chlamydial urethritis and cervicitis

Guideline Category

Diagnosis

Evaluation

Management

Prevention

Screening

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Obstetrics and Gynecology

Urology

Intended Users

Health Care Providers

Physicians

Guideline Objective(s)

Evidence-Based Medicine Guidelines collect, summarize, and update the core clinical knowledge essential in general practice. The guidelines also describe the scientific evidence underlying the given recommendations.

Target Population

Men and women with and at risk for chlamydial urethritis and cervicitis

Interventions and Practices Considered

Evaluation/Diagnosis

1. Patient interview to assess clinical signs and symptoms
2. Basic tests (e.g., chlamydia, gonorrhoea, human immunodeficiency virus [HIV], syphilis)
3. Laboratory diagnostics:
    - Nucleic acid amplification testing
    - First-void urine samples or swab samples
    - Chlamydial serology

Treatment/Management

1. Pharmacologic treatment:
    - Azithromycin (treatment of choice)
    - Alternatives: tetracycline, lymecycline, doxycycline
    - Combination of antibiotics in pelvic infections
2. Testing of the permanent sexual partner of the index patient before treatment
3. Post-treatment follow-up and tracing the contacts of the patient

Screening/Prevention

1. Targeted and/or systematic screening for asymptomatic infections
2. Tracing contacts and partner screening

Major Outcomes Considered

- Sensitivity and specificity of diagnostic methods for chlamydial infection
- Complications of infection
- Adverse effects of treatment
- Cost effectiveness of screening interventions

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

The evidence reviewed was collected from the Cochrane Database of Systematic Reviews. In addition, the Cochrane Library and medical journals were searched specifically for original publications.

Comprehensive and systematic searches were conducted for all topics for which the Finnish Medical Society Duodecim produce national guidelines. As most of the evidence summaries were based on systematic reviews (of which Cochrane reviews were the most important), the search dates are available in the original reviews.

Specific Search Strategy

The update of this guideline includes several systematic reviews with a current care search date of June 2, 2009, with the last comprehensive search on October 28, 2008.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Classification of the Quality of Evidence

Code	Quality of Evidence	Definition
A	High	Further research is very unlikely to change confidence in the estimate of effect. • Several high-quality studies with consistent results • In special cases: one large, high-quality multi-centre trial
B	Moderate	Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate. • One high-quality study • Several studies with some limitations
C	Low	Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate. • One or more studies with severe limitations
D	Very Low	Any estimate of effect is very uncertain. • Expert opinion • No direct research evidence • One or more studies with very severe limitations

GRADE (Grading of Recommendations Assessment, Development and Evaluation) Working Group 2011 (modified by the EBM Guidelines Editorial Team).

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Not stated

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

The guideline developers reviewed a cost-benefit analysis of first-void urine in a *Chlamydia trachomatis* screening programme. Screening for chlamydial infection was found to be cost-effective if the prevalence of chlamydial infection exceeded 3% in the population screened.

Method of Guideline Validation

Peer Review

Description of Method of Guideline Validation

Not stated

Evidence Supporting the Recommendations

References Supporting the Recommendations

Anttila T, Saikku P, Koskela P, Bloigu A, Dillner J, Ikaheimo I, Jellum E, Lehtinen M, Lenner P, Hakulinen T, Narvanen A, Pukkala E, Thoresen S, Youngman L, Paavonen J. Serotypes of Chlamydia trachomatis and risk for development of cervical squamous cell carcinoma. JAMA. 2001 Jan 3;285(1):47-51.

Brocklehurst P, Rooney G. Interventions for treating genital chlamydia trachomatis infection in pregnancy. Cochrane Database Syst Rev. 1998; (4)

Egger M, Low N, Smith GD, Lindblom B, Herrmann B. Screening for chlamydial infections and the risk of ectopic pregnancy in a county in Sweden: ecological analysis. BMJ. 1998 Jun 13;316(7147):1776-80. PubMed

Hiltunen-Back E, Haikala O, Kautiainen H, Paavonen J, Reunala T. A nationwide sentinel clinic survey of chlamydia trachomatis infection in Finland. Sex Transm Dis. 2001 May;28(5):252-8.

Koskela P, Anttila T, Bjorge T, Brunsvig A, Dillner J, Hakama M, Hakulinen T, Jellum E, Lehtinen M, Lenner P, Luostarinen T, Pukkala E, Saikku P, Thoresen S, Youngman L, Paavonen J. Chlamydia trachomatis infection as a risk factor for invasive cervical cancer. Int J Cancer. 2000 Jan 1;85(1):35-9.

Low N. What are the effects of antibiotic treatment in men and non-pregnant women with uncomplicated genital chlamydial infection. Clin Evid. 2005;13:1981-6.

Mathews C, Coetzee N, Zwarenstein M, Lombard C, Guttmacher S, Oxman A, Schmid G. Strategies for partner notification for sexually transmitted diseases. Cochrane Database Syst Rev. 2001;(4):CD002843. [20 references] PubMed

Ostergaard L, Andersen B, Olesen F, Moller JK. Efficacy of home sampling for screening of Chlamydia trachomatis: randomised study. BMJ. 1998 Jul 4;317(7150):26-7. PubMed

Paavonen J, Puolakkainen M, Paukku M, Sintonen H. Cost-benefit analysis of first-void urine Chlamydia trachomatis screening program. Obstet Gynecol. 1998 Aug;92(2):292-8. PubMed

Pimenta J, Catchpole M, Gray M, Hopwood J, Randall S. Evidence based health policy report. Screening for genital chlamydial infection. BMJ. 2000 Sep 9;321(7261):629-31.

Scholes D, Stergachis A, Heidrich FE, Andrilla H, Holmes KK, Stamm WE. Prevention of pelvic inflammatory disease by screening for cervical chlamydial infection. N Engl J Med. 1996 May 23;334(21):1362-6. PubMed

Type of Evidence Supporting the Recommendations

Concise summaries of scientific evidence attached to the individual guidelines are the unique feature of the Evidence-Based Medicine Guidelines. The evidence summaries allow the clinician to judge how well-founded the treatment recommendations are. The type of supporting evidence is identified and graded for select recommendations (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate identification, diagnosis, and treatment of the patient with chlamydial urethritis and cervicitis may help avoid the serious complications of prolonged or recurrent infection (e.g., pelvic inflammatory disease, infertility, ectopic pregnancy) as well as prevent the spread of infection.

Potential Harms

Adverse effects of medications: Some 10% of patients get mild gastric side effects from azithromycin and tetracyclines.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

Finnish Medical Society Duodecim. Chlamydial urethritis and cervicitis. In: EBM Guidelines. Evidence-Based Medicine [internet]. Helsinki, Finland: Wiley Interscience. John Wiley & Sons; 2011 Oct 31 [Various].

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2001 Jun 5 (revised 2011 Oct 31)

Guideline Developer(s)

Finnish Medical Society Duodecim - Professional Association

Source(s) of Funding

Finnish Medical Society Duodecim

Guideline Committee

Editorial Team of EBM Guidelines

Composition of Group That Authored the Guideline

Primary Author: Eija Hiltunen-Back

Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

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Guideline Availability

This guideline is included in "EBM Guidelines. Evidence-Based Medicine" available from Duodecim Medical Publications, Ltd, PO Box 713, 00101 Helsinki, Finland; e-mail: info@ebm-guidelines.com; Web site: www.ebm-guidelines.com.

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

This summary was completed by ECRI on December 17, 2002. The information was verified by the guideline developer as of February 7, 2003. This summary was updated by ECRI on September 8, 2004, June 14, 2005, and December 22, 2006. This summary was updated by ECRI Institute on July 28, 2008 following the U.S. Food and Drug Administration advisory on fluoroquinolone antimicrobial drugs. This NGC summary was updated by ECRI Institute on March 26, 2012. This summary was updated by ECRI Institute on October 25, 2013 following the U.S. Food and Drug Administration advisory on Fluoroquinolone Antibacterial Drugs.

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